**Creating Crystals** Year 8

[](https://cdn.3plearning.com/wp-content/uploads/2014/12/CrystalMain.jpg)You will need

* Sugar
* Salt
* Bi-carb soda
* Warm water
* 3 eye-droppers
* Food colouring – 1 drop (Optional)
* 3 spoons
* 3 plastic containers or bowls
* Measuring cup
* 3 small plastic cups
* Marker

What to do

1. Label the containers ‘sugar’, ‘salt’ and ‘bi-carb’.
2. Pour half a cup of warm water into the container labelled ‘sugar’.
3. Add a spoonful of sugar to the water and stir until dissolved. Keep adding sugar until no more will dissolve.
4. Repeat Steps 2 and 3, but with the salt instead of sugar.
5. Again repeat Steps 2 and 3, but this time with bi-carb soda instead of sugar or salt.
6. Label the small plastic cups ‘sugar’, ‘salt’ and ‘bi-carb’.
7. Use separate eye-droppers to put a few drops of each container’s solution into the matching cup.
8. Place the cups in a warm, sunny place and leave them until the liquid has evaporated. What do you see?

You can try this activity with other crystalline substances as well.

What’s happening?

When a solid (or ‘solute’) is dissolved in the water until no more dissolves, the solution is ‘saturated’. The amount of substance that dissolves in water increases with temperature. As the solution cools back down to room temperature, there is now more solute in the water than would normally be the case – the solution is ‘supersaturated’.

As the water evaporates, the solute precipitates out of solution in the form of crystals. This is an example of crystallisation. You will notice that each precipitate forms slightly different crystals: they might be different in size and shape. The size and shape of a crystal depend on a number of factors including chemical formula, temperature and pressure. In general, crystals that form slowly tend to be larger than crystals that form quickly.

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| Component | Description | Marks |  |
| Title | * Title relevant and concise | 1 |  |
| Aim and Hypothesis | * Aim is clear and concise * Hypothesis relates independent and dependent variables | 2 |  |
| Equipment and Procedure | * Appropriate equipment * Procedure is detailed and specific * Diagram is scientific, neat, labelled and appropriately sized | 3 |  |
| Variables | * Independent variable is identified * Dependant variable is identified * 3 controlled variables identified | 3 |  |
| Results | * Table includes title which relates variables * Columns relate to independent and dependent variables and include headings with units | 2 |  |
| Graph | * Graph title relates variables * Graph type, size and scale appropriate for data * Axis correct orientation and labelled, including units | 3 |  |
| Discussion | * Results summarised and patterns identified * Explanation of results * Difficulties or sources of error identified | 3 |  |
| Conclusion | * Summary of findings | 1 |  |
|  | * Presentation, neatness and literacy | 2 |  |
|  |  | Total | /20 |